DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE MATERIEL COMMAND
WRIGHT-PATTERSON AIR FORCE BASE, OHIO

June 8/10

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FROM: HQ AFMC/EN (Guidance Letter 93-01)
4375 Chidlaw Road, Suite 6
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SUBJ: Substantiation Procedures for Critical Replacement Items and Replacement Assemblies

TO: See Distribution

1. Application: This guidance letter applies to all AFMC organizations responsible for contracting for and/or testing of critical replacement items and replacement assemblies.
2. Background: Several Federal Acquisition Regulations (FAR) provisions and public laws require consistent implementation of qualification requirements for replacement items and replacement assemblies. These documents require procuring agencies to foster competition in the acquisition of replacement items and assemblies. There have been several contractor protests in the past pertaining to the government's inconsistent application of competition initiatives in this area. Therefore, we must ensure that professional engineering judgment is used to contract for the least restrictive requirements possible while adhering to sound engineering principles. Guidance for use by the responsible systems engineering authority in determining the extent of verification required to assure that critical requirements are satisfied is provided below.
3. Guidance: The responsible systems engineering authority shall determine the verification necessary to assure that the replacement item and replacement assemblies meet the critical requirements. While the item or assembly may require verification to the original development specification, all components may not require such complete testing. During development, these requirements are verified through a series of development and qualification tests described in the development specifications. During production, acceptance testing and functional testing, as required by the production and process specifications, verify that critical requirements are met. For items no longer in production, the verification procedures in the production specifications must be evaluated by the responsible systems engineering authority and revalidated for the new procurement. Where production or process specifications are no longer available, the responsible systems engineering authority must establish both the critical item requirements and the verification procedures to assure the item meets the system level requirements as currently prescribed in the systems specification.

ch 93-15A (FAR 9) Post to FAR 9.2 by circling the reference and noting in the margin: "70-41, atch 93-15A". Then file this atch behind the sups to FAR 9.

a. Critical item, Original Equipment Manufacture (OEM) or a second source vendor previously qualified by the OEM or Department of Defense component.

(1) Major change. If a major change has occurred in the configuration, material, or manufacturing process, the responsible systems engineering authority must determine a sufficient qualification verification methodology (i.e. test, analysis, etc.) needed to verify that the critical requirements are met.

(2) Minor change. A minor change which does not affect item performance or interchangeability does not require item re-qualification beyond a drawing comparison, functional test, analysis, etc.

(3) No change. The item does not require re-qualification. In all cases, in-process and production acceptance testing is required.

b. Critical item, new vendor.

Major, minor, or no change. This item is considered as a new, unproven item because the vendor has not previously manufactured this particular item. Because any item is a unique product of its design, material, and manufacturing process; the item may require either development, qualification, and/or production testing to verify that critical specification requirements are met. The responsible systems engineering authority must determine the specification verification procedures that apply to this procurement. The verification should assure that all critical requirements are met.

4. Application: This guidance is intended to provide a baseline, but cannot anticipate all circumstances that will occur. Specific problems will be resolved only through the use of engineering experience, product experience, and technical evaluation (including risk analysis), on the part of the responsible systems engineering authority. The guiding principle is that the responsible systems engineering authority must protect and preserve the safety and performance of the weapon system in the most cost effective manner with inherent consideration of mission success and economical/consequential loss. In addition, systems engineering judgment is required to develop the least restrictive requirements for this process.

When the responsible systems engineering authority determines that specification verification procedures require testing or other quality assurance demonstrations to be completed before award of a contract, the basis for the resulting qualification requirements must be justified, documented, and publicized in accordance with the requirements of the FAR Subpart 9.2, Qualification Requirements.

Definitions for use in Defining the Verification Requirements for Critical Items and Assemblies.

1. Criticality. For the purpose herein, critical items and assemblies are those which could compromise personnel safety, equipment safety, or mission success if a failure occurred. MIL-STD 1629A, "Procedures for Performing a Failure Mode, Effects, and Critical Analysis", encompasses the definition for the severity of failure for critical items. Critical items are developed through the use of a performance specification, a full range of testing, use of a resulting production specification including detailed process and material specifications, in-process testing, and production acceptance testing. An example of substantiation procedures for critical assemblies procurement is the Society of Automotive Engineering Aerospace Recommended Practice 1619, Replacement and Modified Brake and Wheels.

2. Manufacturing Change. Items, as replacement items, often have undergone manufacturing changes since their original manufacture. If original manufacturing data is unavailable for use in a new production, the item may be reverse engineered to regain data for procurement purposes. A manufacturing change can occur either during reacquisition from the original vendor or acquisition from a new source. As applied to avionics equipment, a modified assembly not manufactured or approved under the original certification constitutes a replacement assembly and must be performance substantiated as a major change. Both the modified item as well as the changed assembly and/or subassemblies, in this case, must be permanently reidentified as different from the original manufacturer items. Changes are as follows:

a. Major change. A major change is a configuration, material, or manufacturing process change that could influence component life, durability, strength, or other critical characteristics that would represent a departure from the characteristics. Reverse engineered manufacturing data constitutes a major manufacturing change.

b. Minor change. A minor manufacturing change is a change that does not affect item performance or interchangeability.

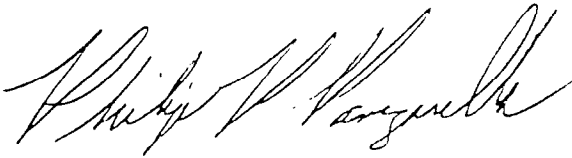
3. Responsible systems engineering authority. This authority resides with the senior engineer supporting the system program director, product group manager, or material group manager.

To resolve potential conflicts in the qualification process, each activity should establish a committee to ensure qualification requirements are properly addressed. As a minimum, membership on the committee should consist of senior level personnel from the engineering, contracting, small business, competition advocacy, and the logistics communities. Committee functions should include reviewing written justifications prepared in accordance with FAR 9.202(a)(1) and providing advice and recommendations regarding adequacy of the justification and the advisability of establishing the proposed qualification requirements. The committee should also review and provide recommendations for resolving complaints or identified problems regarding established qualification requirements or the disposition of source qualification requirements.

5. Effectivity: This letter shall remain in effect until it is rescinded or incorporated into an AFMC Regulation. It replaces AFLC Policy Letter 91-05 as of the date of this letter.

6. Point of Contact: Questions concerning the above guidance should be directed to Mr. Brooks C. Collier, HQ AFMC/ENSP, Commercial (513) 257-5569, DSN 787-5569, FAX 513-476-2893.

FOR THE COMMANDER



PHILIP P. PANZARELLA
Director, Engineering and
Technical Management

1 Atch
Definitions

cc: SAF/AQZ
HQ AFMC/JA/PK